CEMP-RA Pamphlet No. 1110-1-28	Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000	EP 1110-1-28 31 Aug 01
	Engineering and Design LEAD HAZARD RISK ASSESSMENT FOR TARGET HOUSING /CHILD OCCUPIED FACILITIES STANDARD SCOPE OF WORK	
	Distribution Restriction Statement Approved for public release; distribution is unlimited.	
	This Engineering Pamphlet has been developed to incorporate the Environmental Protection Agency's definition of lead hazards to young children as published in 40 CFR 745 Subpart D: Lead; Identification of Dangerous Levels of Lead; Final Rule, 5 January 2001	

This EP Supercedes EP 1110-1-28 Dated 31 March 2000

DEPARTMENT OF THE ARMY
U. S. Army Corps of Engineers
Washington, D. C. 20314-1000

EP 1110-1-28

CEMP-RA

Pamphlet
No. 1110-1-28

31 August 2001

Engineering and Design
LEAD HAZARD RISK ASSESSMENT
FOR TARGET HOUSING/CHILD-OCCUPIED FACILITIES
STANDARD SCOPE OF WORK

1. Purpose. The standard Scope of Work (SOW) described in this Engineer Pamphlet (EP) provides a framework for developing site- and project-specific scopes of work for completion of lead hazard risk assessments at Army target housing, Family Child Care (FCC) homes, child development centers, and other child-occupied facilities.

2. Applicability. This pamphlet applies to all USACE Commands responsible for design of lead hazard risk assessment projects.

3. Distribution. Approved for public release; distribution is unlimited.

4. References. References are included in Appendix A, Paragraph 1.1, References.

5. Discussion.

a. This EP provides a standard SOW for conducting lead hazard risk assessments at Army target housing and child occupied facilities inhabited by children 6 years old or younger, built prior to 1978.

b. This EP provides a framework based on Federal regulations and guidance in effect as of the EP date of publication. The SOW editor shall ensure that updated Federal requirements, as well as applicable state and local (or Outside Continental United States (OCONUS)) requirements are addressed in using this SOW.

c. Those responsible for designing lead hazard risk assessment projects shall be familiar with the concepts and procedures described in the references in Appendix A.

FOR THE COMMANDER:

ROBERT CREAR
Colonel, Corps of Engineers
Chief of Staff

2 APPENDICES
APP A – Lead Hazard Risk Assessment
Standard Scope of Work
APP B - Tables and Forms

This EP Supercedes EP 1110-1-28 Dated 31 March 2000

APPENDIX A
LEAD HAZARD RISK ASSESSMENT
FOR TARGET HOUSING/CHILD-OCCUPIED FACILITIES
STANDARD SCOPE OF WORK

APPENDIX A TABLE OF CONTENTS

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NOTE TO SCOPE OF WORK EDITOR

This Standard Scope of Work (SOW) is to be used for performance of lead hazard risk assessments at active Army target housing, Family Child Care (FCC) homes, child development centers, and other child-occupied facilities (see Glossary)**. All Continental United States (CONUS) target housing and child-occupied facilities constructed prior to 1 January 1978 are assumed to contain lead-based paint (LBP) (see Glossary) by Department of the Army (DA) policy. The presence or use of LBP in target housing/child-occupied facilities, regardless of age, in Outside Continental United States (OCONUS), must be determined on a case-by-case basis. Lead hazard risk assessments determine the presence, nature, severity and location of lead hazards to children (under the age of 6) or document that no hazards exist through a review of site characteristics, visual**

inspection and collection/analysis of dust, paint and soil samples. The assessment provides a report describing lead hazards found and control measures recommended to eliminate the hazards.

This SOW is not to be used, as written, for conducting lead hazard screens, and conducting risk assessments using targeted or worst-case sampling strategies. For information on modifications necessary for targeted or worst case sampling strategy, contact the US Army Corps of Engineers Hazardous, Toxic and Radioactive Waste (HTRW) Center of Expertise. Currently, lead hazard screens are not to be performed at installations because of unresolved issues regarding composite dust sampling and composite dust sample analysis.

This SOW is not to be used for projects associated with the transfer of Army target housing/child-occupied facilities under Base Realignment and Closure (BRAC) procedures. EP 1110-1-31 "Combined Lead Inspection/Risk Assessment for Target Housing Property Transfers Standard Scope of Work" is published for these types of BRAC projects.

DA policy disallows the use of x-ray fluorescence (XRF) in conducting lead hazard risk assessments in Army target housing and child-occupied facilities. Therefore this methodology is not included in the SOW, excepted when conducted as part of a combined lead inspection/risk assessment provided for in EP 1110-1-31.

This SOW does not include requirements for elevated blood lead level (EBL) investigations. EBL investigations involve a more thorough investigation of additional sources of lead hazards to children such as contaminated eating utensils, food and beverage containers, personal hygiene practices, off-site day care, community water supply, public playgrounds, lead painted surfaces in residences and other spaces occupied by children. EBL investigations require a coordinated effort of the installation's lead hazard management team and could include state and local public health departments. See Public Works Technical Bulletin (PWTB) 420-70-2, Installation Lead Hazard Management.

This SOW does not include requirements to assess lead in drinking water. This issue is addressed under the Safe Drinking Water Act monitoring requirements.

The editor of this SOW must have successfully completed a US Environmental Protection Agency (USEPA) or state (if required by the state where the work is to be performed) accredited training course required for certification as a risk assessor (see 40 CFR 745.223) and must have received a course completion certificate. In addition, the editing risk assessor must have familiarity with Federal, state and local requirements applicable in the jurisdiction in which the project is to be completed. If the SOW editor is under contract to the

government, certification as a risk assessor should be required. Contact state and local authorities to determine whether established requirements and procedures are more protective than those outlined in this SOW. State contacts for the Centers for Disease Control Childhood Lead Poisoning Prevention Program may be found on the Internet at http://www.cdc.gov/nceh/program/lead/grants/contacts/contacts.htm

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1.0 PROJECT OVERVIEW, OBJECTIVES, AND DESCRIPTION OF WORK

1.1 REFERENCES

1.1.1 Federal

1.1.1.1 Consumer Product Safety Commission

a. Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint, 16 Code of Federal Regulations (CFR) 1303.

b. CPSC Finds Lead Poisoning Hazard for Young Children in Imported Vinyl Miniblinds, Press Release 96-150, June 25, 1996,

(see **http://www.cpsc.gov/cpscpub/prerel/prhtml96/96150.html**)

1.1.1.2 U.S. Environmental Protection Agency (EPA)

a. EPA National Lead Laboratory Accreditation Program, (NLLAP) Laboratory Quality System Requirements (LQSR) Revision 2.0, August 1, 1996,

(see **http://www/epa/gov/opptomtr/lead/nllapacr.txt**)

b. Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities; 40 CFR Part 745, Subpart L; Lead-Based Paint Activities; Final Rule, 61 FR 45813, August 29 1996;

c. Lead; Requirements for LBP Activities in Target Housing and Child-Occupied Facilities; Certification Requirements and Work Practice Standards for Individuals and Firms, Amendment; 40 CFR Part 745, Subpart L, Lead-Based Paint Activities; Final Rule, 64 FR 42849, August 6, 1999

d. Lead; Identification of Dangerous Levels of Lead, 40 CFR 745, Subpart D Lead-Based Paint Hazards, and Subpart L, Lead-Based Paint Activities; Final Rule, 66 FR 1206, January 5, 2001.

1.1.1.3 U.S. Department of Housing and Urban Development (HUD)

a. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, U.S. Department of Housing and Urban Development, Government Printing Office, Washington, D.C. June 1995. (Chapter 7 revised 1997)

b. Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X), U.S. Department of Housing and Urban Development, 102 P.L. 550.

c. The Lead Listing, The National Lead Service Providers' Listing System. This listing is accessible on the Internet at **http://www.leadlisting.org/**.

1.1.1.4 Occupational Safety and Health Administration (OSHA)

a. Lead Exposure in Construction; Interim Final Rule 29 CFR 1926.62.

1.1.2 U.S. Army (DA)

1.1.2.1 Army Regulation (AR) AR 200-1 Environmental Protection and Enhancement

1.1.2.2 AR 420-70, Facilities Engineering, Buildings and Structures

1.1.2.3 AR 608-10, Child Development Services

1.1.2.4 DA Public Works Technical Bulletin 420-70-2, Installation Lead Hazard Management.

(**http://www.hnd.usace.army.mil/**)

1.1.2.5 DA Hazardous Asbestos and Lead Optimal Management System (HALO)

1.1.2.6 U.S. Army Corps of Engineers (USACE) Engineering Manual (EM) 385-1-1, Safety & Health Requirements Manual

1.1.3 State, Local, & Outside Continental United States (OCONUS) HOST Nation Agreements, etc.

[insert applicable references]

1.1.4 Other Organizations

1.1.4.1 American Association for Laboratory Accreditation (A2LA)

Environmental Lead Program Requirements. February 1994. (A2LA offers accreditation under NLLAP.)

1.1.4.2 American Industrial Hygiene Association (AIHA)

Analytical Quality Programs Quality Manual and Policies, Environmental Lead Laboratory Accreditation Program (ELLAP) and Industrial Hygiene Laboratory Accreditation Program. July 1997. **(http://www.aiha.org)**

1.1.4.3 American Society for Testing and Materials (ASTM)

The Contractor shall assure use of the most current versions of the listed ASTM standards applicable to the project.

a. E1605, *Standard Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures*

b. E1613, *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques*

c. E1644, *Standard Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead by Atomic Spectrometry*

d. E1645, *Standard Practice for the Preparation of Dried Paint Samples for Subsequent Lead Analysis by Atomic Spectrometry*

e. E1726, *Standard Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry*

f. E1727, *Standard Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques*

g. E1728, *Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques*

h. E1729, *Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques*

i. E1792, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*

j. E1979, *Standard Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead*

1.2 REGULATORY REQUIREMENTS

1.2.1 Regulatory Authority/Requirements

The Contractor shall conduct all work in accordance with the following Federal, state, and local regulations and requirements. Where inconsistencies exist between the requirements and this SOW, the Contractor shall use the most protective.

1.2.1.1 Federal Requirements

a. Assessment Procedures and Requirements.

The Contractor shall comply with all 40 CFR 745 Subpart L requirements as outlined in this SOW, using referenced methodologies of the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, HUD, June 1995 (Chapter 7 Revision, 1997); and EPA "Lead; Identification of Dangerous Levels of Lead"; Final Rule, 66 FR 1206, 5 January 2001. The Contractor shall comply with DA Public Works Technical Bulletin 420-70-2, Installation Lead Hazard Management regarding use of DA Hazardous Asbestos and Lead Optimal Management System (HALO) (See Glossary).

b. Health and Safety Requirements

The Contractor shall comply with applicable OSHA standards and with the USACE Safety and Health Requirements Manual EM 385-1-1 including the submission of an Accident Prevention Plan (APP) to the Contracting Officer (See Glossary) prior to performing field activities. Field activities shall not begin without acceptance of the APP by the Contracting Officer.

1.2.1.2 State and Local Requirements

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NOTE: Reference state, local, (and OCONUS if applicable) or installation-specific requirements that differ from the Federal requirements cited above that are applicable to the work addressed in this SOW.

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[The Contractor shall comply with the following state [and local] [or installation] requirements in completing the activities required by this SOW. [insert applicable references]]

1.3 SITE CHARACTERISTICS, OBJECTIVES AND DESCRIPTION OF WORK

1.3.1 Site Location/Characteristics and Occupant Use Patterns

****

NOTE: Identify the target housing/child-occupied facilities and Family Child Care (FCC) homes to be addressed in the risk assessment on a unit-by-unit basis**. Obtain site location information including installation and building designations (e.g., single unit or multiple unit housing, child development centers) unit floor plans and addresses. Provide the information and floor plans as an attachment to the SOW. Summarize physical characteristics and occupant use pattern information (see Glossary) that the Contractor must review as required by 40 CFR 745 Subpart L. This SOW requires the Contractor to collect detailed physical characteristics information during the visual assessment in Task # 2 using Forms 1 and 2 (Figure B-1 and Figure B-2, Appendix B).**

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The risk assessment shall address the following locations [insert unit description information]. The physical characteristics and occupant use patterns at these locations are summarized as follows: [insert physical characteristic and occupant use pattern descriptive information].

1.3.2 Previous Studies and Results

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NOTE: Include previous lead studies and results that are to be reviewed and considered by the risk assessor in making lead hazard decisions and conclusions for the work specified in this SOW.

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[Prior to initiating field activities required by this SOW, the risk assessor shall review the previous study data results collected at the location(s) identified in Paragraph 1.3.1, and provided as an attachment to this SOW.]

1.3.3 Project Work Tasks/Description of Work

The project work tasks include : [describe each project specific work task that is required to accomplish the Tasks described in this SOW]. The lead hazard risk assessment shall include a visual assessment and sampling for the identification of lead hazards at each unit included in the survey. Procedures and requirements for completing the risk assessment activities are defined in the paragraphs that follow.

1.3.4 Unit Selection Strategy

****

NOTE: All risk assessments involving multi-family housing units greater than 20 units of similar construction and maintenance histories at Army installations shall be evaluated using random sampling strategy. All single unit housing, multi-unit housing comprised of 20 or fewer units, and all units that have dissimilar construction or maintenance histories must be evaluated individually. Housing unit access and common area sampling strategies must also be addressed as a part of sampling strategy.

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[The Contractor shall perform a risk assessment on each unit identified in this SOW.]

[The Contractor shall randomly assess (see Glossary) the housing units identified in this SOW. Units shall be selected for risk assessment from the total unit population identified in Paragraph 1.3.1. The minimum number that must be randomly assessed shall be determined by using Table B-1 (Appendix B). Following random selection of units to be assessed, any Family Child Care (FCC) homes not included in the list identified for assessment through the random selection process shall be added to and included in the list. The Contractor shall randomly select alternate housing units beyond the minimum number required in Table B-1 (Appendix B) to provide flexibility based on information obtained on site

and the success in gaining access to the selected housing units. The procedure used to randomly select the units shall be specified in the Project Work Plan.]

1.3.5 Data Quality Objectives (DQOs)

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NOTE: Refer to EPA "Lead; Identification of Dangerous Levels of Lead", Final Rule, 66 FR 1206, 5 January 2001.

****

The Contractor shall meet the project-specific DQOs for the sampling, analysis and Quality Assurance/Quality Control (QA/QC) by meeting the requirements of Paragraphs 2.2 and 2.3. DQOs must be met in order to provide project required data quality. The data thus collected shall be compared to action levels defining lead hazards provided in Table A-1 below. If the data are below the action levels, recommendations shall be made in the Risk Assessment Report in accordance with Paragraph 2.4.10.

Table A-1

Hazard Levels for a Lead Risk Assessment

Sample Matrix/Surface Type	Paint-Lead Hazard Action Level[1]
Lead-Based Paint	0.5% by weight or 5,000 µg/g (ppm)
Deteriorated Paint	Any Lead-Based Paint on any surface (interior or exterior) that is peeling, chipping, chalking or cracking, or otherwise damaged or separated from the substrate
Paint-Lead Hazard[1]	Any friction surface subject to abrasion with horizontal dust lead levels below and nearest the surface equal or exceeding Dust-Lead Hazard levels in this Table
	Any chewable lead-based paint surface with teeth marks.
	Damaged or deteriorated lead-based paint impact surface such as caused by doorknobs or out-of-plumb doors.
Dust-Lead Hazard[1] (single surface wipe sampling only)	
All Floors, Hard Surface and Carpeted	40 µg/ft^2
Interior Window Sills	250 µg/ft^2
	Floors or windowsills in unsampled dwellings or common areas that are part of multi-family units if at least on sampled unit tested positive for these parameters.
Soil-Lead Hazard[1]: bare soil: child play area	400 ppm
Soil-Lead Hazard[1]: remainder of yard excluding child play areas	1200 ppm
[1]See 40 CFR 745.65 for more detailed definition.	

1.3.6 Bid Assumptions

****

NOTE: Review risk assessment sampling, analysis, QA/QC and reporting tasks that will be performed. As a rule of thumb, six to eight dust wipes and

five deteriorated painted surfaces are sampled per unit during most risk assessments. The number of paint chips analyzed per unit should typically range from two (2) to ten (10). **A total of two composite soil samples per unit are also typical for risk assessments. One QA dust spike sample for each 50 field wipes, and QA paint chip samples at 1% to 5% of total paint chip samples collected should be allowed. Typical lab cost for lead dust, paint chip and soil sample analysis can range to $25.00 per sample keeping in mind that an NLLAP recognized lab must be used. The prices may vary depending on geographical region. Check with qualified labs in the area of the project. It may be cost-effective to overnight mail samples to remote labs with known proficiency and cost savings in lead analysis. This information can easily be obtained by asking some of the large national consultants that do business with the District Office in other areas. In the bid, ask the contractors to provide a unit cost per sample to be charged by them in calculating their overall proposal, in the event additional samples beyond those projected must be collected once the contract begins (e.g., re-sampling certain areas, etc.). Include the requirement for a preliminary site walkover.**

****

Bid assumptions include: [insert bid parameters]

2.0 PROJECT REQUIREMENTS

2.1 TASK 1 DESCRIPTION OF CURRENT CONDITIONS/PROJECT WORK PLAN

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NOTE: Determine the need for the Contractor to review information contained in the installation's Lead Hazard Management Plan and conduct interviews with personnel familiar with the unit histories, in the Contractor's development of the Project Work Plan and Risk Assessment Sampling Plan.

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2.1.1 Background Data

The Contractor shall review general information on physical characteristics and occupant use patterns affecting children less than six years old for the units that will be addressed in the assessment, [and preexisting survey data] prior to performing Task 2.

2.1.1.1 Lead Hazard Management Plan Review

[The Contractor shall review the installation's Lead Hazard Management Plan, including the history of LBP hazards in the units to be assessed in this SOW.]

2.1.1.2 Interviews

[The Contractor shall conduct interviews of personnel familiar with facility history and with facility use patterns. Personnel to be interviewed shall include:

a. Installation Lead Hazard Management Team Leader

b. Installation Environmental Officer - to determine if LBP has been found in previous assessments, to review preexisting survey data, if provided, to identify LBP locations, to verify maintenance histories, and to coordinate unit access procedures.

c. Director of Public Works - to discuss assessment logistics, i.e., access and assessment scheduling.

d. [The Safety Officer]

e. [Installation Medical Authority – to review the Childhood Lead Poisoning Prevention Program (CLPP Program).]

f. [The Chief of Housing – to coordinate assessment logistics including occupant access and notification procedures.]

g. [insert others whose interviews are important to the project]]

2.1.1.3 Summary of Preexisting Data, Lead Hazard Management Plan, and Interviews

[The Contractor shall complete a project deliverable as an attachment to the Project Work Plan that summarizes the review of preexisting data, [the Lead Hazard Management Plan], and interviews for the units to be assessed, based on the information provided above. The summary shall address the following:

a. Reliability of Previously Collected Data

A brief summary of the reliability of data from previous studies.

b. Lead Hazard Management Plan

A brief summary of the Installation's Lead Hazard Management Plan information pertinent to the risk assessment including any previous lead-based paint identification data, and maintenance history and practices.

c. Interviews

A brief summary of the interviews and the conclusions reached.]

2.1.2 Project Boundaries Identification/Floor Plans

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NOTE: If digital site maps and floor plans for each type of unit are not available, the SOW editor may wish to have the contractor prepare Computer Assisted Design and Drafting (CADD) drawings of the units involved with the

lead inspection/risk assessments. Such drawings should be prepared by the contractor in accordance with the Tri-Service GIS Spatial DATA Standards. Having the contractor prepare the CADD drawings can significantly increase the cost of the lead risk assessment.

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Site maps identifying individual units for all facilities that will be assessed, and floor plans/sketches for each type of unit assessed are [provided in CADD format and] attached as a part of this SOW. The Contractor's risk assessor shall use the [CADD] plans/sketches when performing Task 2 to identify and record sample locations in developing the Risk Assessment Sample and Sample Location Documentation.

2.1.3 Preliminary Site Visit/Walkover

The risk assessor shall conduct a preliminary site visit/walkover. This walkover shall be used to ensure that all site-specific conditions and special accessibility requirements are addressed in the Project Work Plan and Risk Assessment Sampling Plan.

2.1.4 Occupant Notification/Housing Unit Access

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NOTE: Occupant notification of planned lead-hazard risk assessment activities is an installation responsibility. Coordinate with the Director of Public Works, the Environmental Manager and the Housing Authority.

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The Government shall notify the occupants of the units that will be assessed regarding the activities planned [insert text as applicable] days prior to beginning the assessment activities, and shall arrange access to housing units. The Contractor shall coordinate with the Contracting Officer and installation authority responsible for notification and unit access, and establish a schedule for unit entry based upon the contractor's Risk Assessment Sampling Plan and requirements of this SOW.

2.1.5 Project Work Plan

The Contractor shall prepare a project work plan after the preliminary site visit/walkover and preliminary review of this SOW. The project work plan shall address the following:

- Accident Prevention Plan (APP).
- Project work tasks/description of work including any recommended changes following preliminary review including the [CADD] floor plans/sketches provided, and including [usability of preexisting data] unit access requirements, scheduling, escort requirements, and laboratory turn-around requirements if different than as specified in this SOW
- Risk Assessment Sampling Plan including unit and sample selection and analysis strategy.
- Identification and qualifications of each laboratory used to analyze lead samples

- Project personnel/team identification and qualifications
- [Summary of Preexisting Data, Lead Hazard Management Plan, and Interviews]

2.2 TASK 2. CONDUCT RISK ASSESSMENT

2.2.1 Risk Assessment

2.2.1.1 Visual Assessment

The risk assessor shall conduct a visual assessment of all selected units to locate potential LBP hazards and to evaluate the magnitude of each hazard. If previous paint inspections have been conducted, the assessor shall focus on the painted surfaces that are known to contain lead-based paint and the dust reservoirs around them. Paint on surfaces older than 1 January 1978 shall be assumed to be LBP where testing has not determined otherwise. The risk assessor shall visually inspect the unit exterior and every room of each unit that will be assessed to evaluate paint and building conditions using the floor plans/sketches. Every lead-based paint component system with the same distinct painting history (see Glossary) shall be evaluated separately. All potential paint-lead hazards shall be visually identified based on condition as follows:

The risk assessor shall identify:

- Any friction surface or impact surface with visibly deteriorated paint, and surface that can potentially exceed the dust-lead hazard action levels in Table A-1
- Any chewable surface with evidence of teeth marks.
- Any other deteriorated lead-based paint identified on any component system.
- Visible dust
- Bare soil

In addition the risk assessor shall visually assess painted surfaces in common areas accessible to children. The risk assessor shall inspect deterioration on friction and impact surfaces by operating and examining the friction and/or impact surfaces of several of the windows and doors that are used most frequently (if known). The visual assessment of each unit shall be documented using Form 1 and Form 2 (see Figure B-1 and Figure B-2, Appendix B). The forms shall be submitted as attachments to the Risk Assessment Report.

2.2.1.2 Sample Location Selection

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NOTE: Multi-unit common areas must be sampled when performing multi-unit assessment sampling. Sampling criteria for community buildings, day care, or other spaces frequented by children require coordination with customer prior to beginning the project

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The assessor shall select single surface dust wipe, paint chip, and soil sample locations during the visual assessment. Sample locations for each unit shall be identified on each unit floor plan/sketch, and shall be selected based on visual observations, separate component systems with distinct painting histories, pre-assessment unit information (including physical characteristics, use patterns, previous study results), and on the following: Surfaces to be tested for lead include each friction surface or impact surface with visibly deteriorated paint, and all other surfaces with visibly deteriorated paint. Surfaces that have been chewed (or where chewing and/or mouthing have been reported) shall be identified as lead-based paint hazards and shall not require sampling. Chewed surfaces may include interior windowsills, balusters, shelves, stairs, and other component systems accessible to children's mouths. Samples shall not be collected from worn portions of the painted surfaces that will be tested. Friction or impact surface hazards shall be evaluated by dust wipe analysis, and accordingly shall not require paint chip sampling.

a. Dust Sample Locations

One dust sample shall be collected from interior windowsills and floors in all living areas representing distinct component systems, where one or more children, age 6 and under are most likely to contact dust. Any lead-based paint on a friction surface with visibly deteriorated paint or that is subject to abrasion shall be sampled where the lead dust levels on the nearest horizontal surface beneath the friction surface can potentially exceed the dust-lead hazard action levels in Table A-1.

For multi-family dwellings:

In addition to samples required above, interior windowsill and floor dust samples shall be sampled for lead concentration in:

- Common areas adjacent to the sampled residential dwelling or child-occupied facility
- Other common areas in the building where the risk assessor determines children six or under might contact dust according to the following:

- Common Areas – Multi-Unit Low Rise (up to and including four stories):
    - One from the entry floor, and
    - One from the floor of the first story landing of a common hallway, or stairway
    - If a hallway window is frequently used, the risk assessor shall collect an interior windowsill sample as a substitute for the first story floor-landing sample.
- Common Areas – Multi-Unit High Rise (greater than four stories):
    - Two additional samples from the corridor of every fourth floor
    - One sample from the floor areas
    - One sample from the windowsill.
    - Two additional samples from stairways: one from the stair treads, one from the landing

For child-occupied facilities:

Interior window sill and floor dust samples shall be collected in each room, hallway or stairwell utilized by one or more children, age six or under, and in other common areas in the child-occupied facility where such children are likely to come in contact with dust according to the following:

- Community buildings, day care or other spaces frequented by children - Spaces up to 2000 square feet:
  - Floors: two samples from widely separated "high traffic" areas
  - Windows: two samples – each sample from a window sill, up to two
- Community buildings, day care or other spaces frequented by children - Spaces over 2000 square feet:
  - Floors: one additional sample for every 2000-square foot increment
  - Windows: one additional sample from a windowsill for every 2000-square foot increment.
- Community buildings, day care or other spaces frequented by children - Management office:
  - Resident waiting area: one floor sample if under 400 square feet, two samples if over 400 square feet.]

b. Paint Chip Sample Locations

One paint chip sample shall be collected from each interior [and exterior] deteriorated paint component system with a distinct painting history. Only one sample shall be taken for each such component system for which a common painting history can reasonably be assumed. The deteriorated areas of the represented paint system shall be given sampling priority for ease of removal. Samples shall be collected from inconspicuous locations whenever possible and safe. Sampling locations shall be selected based on presence of all intact layers of paint.

c. Soil Sample Locations

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NOTE: In some parts of the country, particularly the South and coastal areas, family housing may have accessible crawl spaces used as play areas by small children. Samples should be collected from the bare soil in these crawl spaces.

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The risk assessor shall collect [at least two] composite soil samples representing all bare soils accessible to children. Only bare soils shall be sampled. Bare soil areas to be considered include:

- One composite from the foundation drip line and,
- One composite from exterior play areas including accessible crawl spaces
- [Gardens]
- [Other locations as required by applicable regulations]

2.2.1.3 Risk Assessment Sample and Sample Location Documentation

Upon completion of the visual examination for each unit included in the assessment, and prior to actual sampling, the Contractor shall clearly mark, number and otherwise uniquely identify all dust, paint chip, and soil samples by marking the locations on the floor plan or sketch and by using the forms indicated below. The resultant information shall be compiled and labeled the "Risk Assessment Sample and Sample Location Documentation" before actual sampling commences on a unit-by-unit basis. Sampling shall be completed immediately following the visual examination and sample location documentation, prior to exiting the unit to proceed to the next.

Single surface dust sample locations shall be recorded on the floor plan or sketch and by filling in the identifying information on Form 4 (see Figure B-4, Appendix B).

Paint chip sample locations shall be recorded on the floor plan or sketch and by filling in the identifying information on Form 3 (see Figure B-3, Appendix B).

Each composite soil sample location and identity shall be recorded on Form 5 (see Figure B-5, Appendix B) and on the floor plan or sketch by sub-sample location. The plan or sketch shall include property boundaries.

The Contracting Officer reserves the right to audit the Risk Assessment Sample and Sample Location Documentation for any unit, at any time during the course of the project. The Risk Assessment Sample and Sample Location Documentation shall be included as an attachment to the Risk Assessment Sampling Plan following completion of the fieldwork, and submitted as a part of the Risk Assessment Report.

2.2.2 Single Surface Dust Sampling

Dust samples shall be collected for analysis by single surface wipe sampling. Dust wipe samples shall always be collected before paint chip samples to avoid cross-contamination. Gloves shall always be changed before each additional sample is collected. After donning gloves, do not touch anything other than the wipe and surface to be sampled. If the wipe is dropped, or contact is made outside the sampling area, discard the wipe and sample another undisturbed area. In each unit that will be sampled, discard the first wipe from the dispenser before initiating sampling. Fold the wipes completely before inserting into the collection tube.

Samples shall be collected in accordance with ASTM's *Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques* (E 1728), using wipe materials meeting the requirements of *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust* (E 1792). (see AIHA web site **(http://www.aiha.org**) for a listing of wipe vendors meeting ASTM Method E 1792 criteria.)

2.2.3 Deteriorated Paint Chip Sampling

The risk assessor shall collect and preserve paint chip samples for each deteriorated paint component system with a distinct painting history in accordance with ASTM's *Standard Practice for Field*

Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques (E 1729).

2.2.4 Soil Sampling

Each composite sample shall include not less than two (2) and not more than ten (10) sub-samples collected from distinct locations roughly equidistant from each other along an axis. Sub-samples along drip lines shall generally be collected two to six feet from each other. In other sampling locations such as play areas sub-samples shall be collected from roughly equidistant locations along each leg of an X-shaped pattern.

Sample collection shall be conducted in accordance with the most current edition of *Standard Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques*, ASTM Standard E 1727.

2.2.5 Sample Identification

Dust, paint chip, and soil samples shall be identified using unique sample numbers. Field and laboratory blanks and spiked samples submitted to the laboratory for QA/QC purposes shall be numbered in such a way that the sample identity will not be revealed to personnel conducting the analysis.

2.2.6 Sample Chain-of-Custody

The Contractor shall follow a standard chain-of-custody protocol to ensure and document a continuous record of sample possession from sample collection to receipt by the laboratory. The Contractor shall complete and maintain chain-of-custody forms for each set of samples shipped to the laboratory, and a copy of the forms shall accompany each shipment of samples. Form 7 is included as an example chain-of-custody form. See Figure B-7 in Appendix B.

The Contractor shall include copies of all chain-of-custody forms completed during the assessment in the Risk Assessment Report.

2.2.7 Decontamination

Field sampling equipment shall be decontaminated following the appropriate ASTM standard. At a minimum, the field decontamination procedures for non-disposable sampling equipment (e.g., knives, coring devices, scrapers) shall consist of either wiping the equipment off twice using a clean wet wipe each time, or washing in a solution of non-phosphate detergent (e.g., Liquinox®), and rinsing with distilled water. The equipment shall be decontaminated prior to each use, between each sample, and prior to leaving the site. Disposable latex gloves shall be discarded after each sample. Gloves need not be changed between each sub-sample when collecting composite soil samples. The Contractor shall coordinate with the installation environmental officer to determine requirements for the disposal of decontamination waste and used personal protective equipment.

2.3 TASK 3 SAMPLE DATA ANALYSIS, EVALUATION OF FINDINGS

2.3.1 Sample Preparation and Analysis

Samples collected by the risk assessor during the assessment(s) shall be sent to a laboratory recognized by the EPA under the NLLAP for analysis. The laboratory must be accredited for each type of analysis required. The Contractor shall verify the following with the laboratory:

2.3.1.1 Dust Sample Preparation and Analysis

Dust samples shall be prepared for analysis following the ASTM *Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead by Atomic Spectrometry* (E 1644) or *Standard Provisional Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead* (E 1979) and analyzed following the *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques* (E 1613). The most current version of the methodology shall be used. The laboratory shall report results in units of microgram per square foot ($\mu g/ft^2$), allowing direct comparison with Table A-1 and EPA criteria.

2.3.1.2 Paint Chip Sample Preparation and Analysis

Paint chip samples shall be prepared for analysis following the ASTM *Standard Practice for the Preparation of Dried Paint Samples for Subsequent Lead Analysis by Atomic Spectrometry* (E 1645) or *Standard Provisional Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead* (E 1979), and analyzed following the *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques* (E 1613). The most current version of the methodology shall be used. Results shall be reported in units of micrograms per gram (µg/g) and parts per million (ppm), allowing direct comparison with the EPA criteria.

2.3.1.3 Soil Sample Preparation and Analysis

Soil samples shall be prepared for analysis following the ASTM *Standard Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry* (E 1726) or *Standard Provisional Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead* (E 1979) and analyzed following the *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques* (E 1613). The most current version of the methodology shall be used. Results shall be reported in units of µg/g and ppm, allowing direct comparison with the EPA criteria.

2.3.1.4 Laboratory Turnaround Time

The Contractor shall require the laboratory to report analytical results to the Contractor within [5] [insert number of days] days of the laboratory's receipt of the samples in the laboratory.

2.3.2 Quality Assurance and Quality Control (QA/QC)

2.3.2.1 Field Blank Dust Wipe QA Samples

Field blanks for single wipe sampling shall be using the same wipe material used to collect the field wipe samples. There shall be no indication to the laboratory, by sample identification numbers or other means, that the field blank samples are QA samples.

2.3.2.2 Field Spike Dust Wipe QA Samples

****

NOTE: The AIHA produces the most reliable spiked lead samples that are commercially available and are specified over all other sources if commercial spikes are purchased, since the AIHA prepared spiked samples are used in the Environmental Lead Proficiency Analytical Testing (ELPAT) certification program. The AIHA stock samples are obtained through the AIHA.

AIHA

2700 Prosperity Road

Fairfax, Virginia 22031

(703) 849-8888 (voice)

(703) 207-3561 (fax)

http://www.aiha.org/fees.html/

The text below gives the Contractor two options to generate spiked wipe samples:

In Option a, the Contractor must obtain the same wipe material used by the commercial source in preparing the spikes, to collect field samples.

Option b allows the Contractor to use a second independent laboratory to prepare spikes sent to the laboratory doing the analysis of the field data. The laboratory must use NIST traceable materials in preparing the spike samples.

****

The Contractor shall submit double-blind (spiked) QA dust wipe samples to the laboratory at a frequency of one double-blind sample per 50 field samples collected (with a minimum of at least one) using one of the two following options:

a. The Contractor shall obtain commercially prepared spiked wipe samples that are prepared by meeting the same QA/QC requirements in preparing spiked wipe samples used by the AIHA in its management of the Environmental Lead Proficiency Analytical Testing (ELPAT) laboratory certification program, for submittal to the laboratory. [One source of spike samples meeting the QA/QC requirements is listed on the AIHA web site: **http://www.aiha.org**.] The Contractor shall obtain from the commercial source, wipes of the same brand and type as those used to prepare the

spiked samples. The Contractor shall use these wipes to collect field samples and to prepare field blank samples.

b. The Contractor shall hire a laboratory to prepare spiked wipe samples using National Institute of Standards and Testing (NIST) traceable materials. Spiked samples shall be prepared using leaded dust, not lead in solution. The lead concentration in the spiked wipe samples shall approximate the amount of lead in the lead action level criteria for floors in Table A-1 of this SOW. The Contractor shall provide uncontaminated wipes of the same brand and lot as the wipes that will be used to collect field samples, to the laboratory preparing the spiked samples. The laboratory shall use these wipes to prepare the spiked wipe samples. The laboratory preparing the spiked samples shall be independent of the laboratory that will be used to analyze the field samples and field QA samples.

There shall be no indication to the laboratory analyzing the field samples, by sample identification numbers or other means, that the spiked samples are QA samples.

2.3.2.3 Field Duplicate/Spike Paint Chip QA Samples

****

NOTE: The use of commercially prepared paint chip samples as spike samples allows the contractor to submit spiked paint chip samples of predetermined, known lead concentrations to the laboratory for QA purposes. This option can be used in conjunction with the requirement to prepare field duplicate spike samples.

****

The Contractor shall submit double-blind QA paint chip samples to the laboratory for analysis. At a minimum, these shall include field duplicate samples, prepared by using standard mortar and pestle homogenizing techniques, collected at a rate of 2-5% of total samples collected. [The Contractor shall submit standard reference samples (commercially-prepared paint chip samples with a known concentration of lead) at a rate of 2-5% of the total samples collected, to the laboratory for analysis. The lead concentration in the samples used shall be within 75% to 125% of the lead hazard action levels in Table A-1 if available.] There shall be no indication to the laboratory, by sample identification numbers or other means, that the samples are QA samples. The Contractor shall evaluate the results of the analyses of QA samples as outlined in the DQOs developed under this SOW.

2.3.2.4 Field Rinsate Blank QA Samples (Soil)

One rinsate blank (see Glossary) for coring or spoon sampling techniques (refer to ASTM Method E1727) shall be included with each batch of soil samples sent to the laboratory.

2.3.2.5 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Soil QC Samples

The Contractor shall collect a sufficient quantity of soil to ensure that the laboratory can prepare the MS/MSD samples. (One set of MS/MSD samples shall be prepared for each batch of soil samples

submitted to the laboratory for analysis in accordance with ASTM's *Standard Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry (*E 1726).)

2.3.3 Project Data Review and Assessment

****

NOTE: The analytical data acceptance criteria for lead hazard identification and control samples provided in Table B-3 (Appendix B) have been adapted from the Laboratory Quality System Requirements (LQSR) Revision 2.0 (August 1996), Table A-1, Section 10-Quality Assurance and Quality Control. Table B-3 (Appendix B) must be verified (and updated as needed) as a part of the SOW editing process by contacting the EPA NLLAP Program Manager (call the EPA Hot Line 1-800-424-LEAD). Any time laboratory data are reviewed for acceptability, the current revision of the LQSR must be consulted to make required changes to Table B-3 (Appendix B).

****

The Contractor shall review all project data collected as part of the current assessment and verify that the data was collected in accordance with the DQOs. Data review includes: (1) Field sample collection and control review, and (2) Analytical laboratory data review. Field sample collection and control review includes evaluating the adequacy of the Risk Assessment Sampling Plan throughout the performance of the assessment.

2.3.3.1 Field Wipe Quality Assurance Verification

Prior to beginning field dust sampling, the risk assessor shall provide the laboratory with at least one uncontaminated wipe per each container of bulk packed wipes that will be used for collecting field dust wipes, or verify to the Contracting Officer that the wipe material meets the requirements of *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust* (E 1792). Wipes containing more than 5.0 µg/wipe of background lead shall render the entire container of bulk packed wipes represented by the analyzed wipe, contaminated and disqualify the represented wipes for field use. (See AIHA web site for a listing of wipe vendors meeting ASTM Method E 1792 criteria.)

2.3.3.2 Laboratory QA and QC Verification.

****

NOTE: The Contractor must choose the most advantageous technique to provide extra samples to the laboratory, should additional samples be required by the laboratory to replace sampling or QA/QC data lost due to laboratory mistakes. The Government is not liable for cost of additional sample collection due to laboratory mistakes, Contractor sample collection problems, or chain-of-custody errors.

****

a. Evaluation of Laboratory Data

The Contractor shall obtain and review NLLAP-required QC data generated for each sample run completed under this SOW. The QC data shall include batch QC validation data and the 95% confidence interval data (determined by the laboratory from QC charts or a QC database for each matrix, i.e., single surface dust wipe samples, deteriorated paint chip samples, soil samples) determined at concentrations equivalent to 40 µg/ft^2 for dust wipe samples, 0.5% by weight (5000 µg/g (ppm)) for paint chip samples, and [insert applicable criteria from Table A-1] µg/g (ppm)) for bulk soil samples. The Contractor shall evaluate the data package to determine that the QA/QC data generated for each sample run falls within current NLLAP Laboratory Quality System Requirements (LQSR) parameters listed in Table B-3 (Appendix B). Spiked samples submitted to the laboratory shall fall within 75% - 125% of the true value.

b. Rejection of Laboratory Data

The Contractor shall not accept or use data from the laboratory that does not fall within current NLLAP LQSR parameters specified in Table B-3, (Appendix B). If the laboratory fails to obtain spiked sample results within the specified error limits:

- Two more spikes of the same matrix shall be sent immediately to the laboratory for analysis.
- If the two additional spike samples fail, the sample batch shall be considered invalid for the matrix represented.

If laboratory data are rejected and insufficient quantities of the samples remain to allow re-analysis of the samples while adhering to QA/QC requirements, the Contractor shall collect and submit additional samples, at no cost to the Government, for laboratory analysis using NLLAP QA/QC protocols. The Contractor shall also be responsible for any re-sampling required due to laboratory errors that result in the destruction or loss of data, or a failure to report results on any samples submitted.

2.3.4 Contractor Certification of Project Data Validity

The Contractor shall certify that all field data collected to determine the presence of a lead hazard were valid and meet the DQOs.

2.3.5 Comparison with Lead Hazard Criteria

The Contractor shall compare the collected data with the lead hazard criteria listed in Table A-1 to determine whether lead hazards are present. This comparison shall be documented in the Risk Assessment Report, as outlined below.

For all hazard evaluations, the data shall be examined to determine if consistent patterns emerge (e.g., the window troughs contain high levels, while floors and interior sills are low); such patterns will be used in the development of recommendations for focused, cost-effective control measures.

2.3.6 Project Data Presentation

The Contractor shall provide the project data to the Contracting Officer in both a written laboratory report and an electronic format [HALO] [insert other data management system as applicable].

2.3.6.1 Laboratory Report

The Contractor shall require the laboratory to provide the information necessary for the Contractor to comply with the data evaluation/validation procedures outlined in this SOW. This shall be included in a data package containing the following information:

- Cover page information including methods, dates, instruments, digestions, and signature of the laboratory director.
- Sample information including identification and results for blanks, QC samples, samples, dilution factors, and batch identification.
- Results of initial precision and accuracy runs.
- Results of calibration, including sources of standards and detection limits.
- Results of blanks, including type of blank, and any corrections used.
- Results of calibration verification checks.
- Results of tests for precision and accuracy.
- Results of standard sample analysis to 95% confidence intervals which contain concentrations of lead that correspond to a given action level.

2.4 TASK 4 RISK ASSESSMENT REPORT

****

NOTE: 40 CFR 745.227(h) requires that risk assessment reports be retained for a minimum of three years. State, local, or installation regulations may require a longer retention period.

****

The Contractor shall prepare a Risk Assessment Report containing the elements described below.

2.4.1 General Report Contents

In addition to the information described in Paragraphs 2.4.2 through 2.4.10 below, the assessment report shall include:

- Date of [each] assessment
- Address of [each] building
- Unit number

- Date of construction of [each] building
- Name, address and telephone number of each installation point of contact (POC) for buildings assessed
- Name, signature, and certification number of each risk assessor conducting the assessment
- Name, address, and telephone number of the Contract firm employing the certified risk assessor(s)
- Name, address and telephone number of each laboratory used to [prepare and] analyze samples collected during the assessment
- Risk Assessment Sampling Plan to include Risk Assessment Sample and Sample Location Documentation.
- Laboratory Report
- Pre-existing data used in decision process
- A description of the location, type, and condition of identified lead-based paint hazards and any other potential lead hazards. [The Contractor shall include a photograph of each deteriorated paint sample location.]
- Correspondence, Conference and Field Notes, Forms, Other Documentation.

2.4.2 Summary of Pre-existing Data, Lead Hazard Management Plan, and Interviews

[The Contractor shall attach a copy of the Summary of Pre-existing Data, Lead Hazard Management Plan, and Interviews.]

2.4.3 Contractor Data Certification

The Contractor shall certify that the data used to develop conclusions and recommendations were reviewed, valid, and met the DQOs (i.e., that the data were of sufficient quantity and quality to identify and characterize lead hazards at the units).

2.4.4 Electronic HALO/Installation Data Downloading into Installation System

****

NOTE: All data collected during activities described in this SOW is to be provided to the Army in a format compatible with the Army's Hazardous Asbestos and Lead Optimal Management System (HALO) or, if the installation does not utilize HALO, compatible with the installation data management system requirements. HALO is a hazard management system designed to track lead and asbestos hazards and actions taken in response to the identified hazards. HALO requires an IBM-compatible personal computer (with a PentiumÒ processor), Windows 95, 16 MB of RAM, 10MB of available hard disk space, Word 97, and display resolution of 800x600 pixels. The current point-of-contact for HALO is:

USACE Engineering Research and Development Center (CEERDC)
CEERD CF-M
(217) 352-6511, extension 7239 (commercial)

Where the installation has no unique data management system for LBP data, HALO will be the default program for all deliverables under this SOW. The SOW should detail the procedure for the Contractor to follow in providing the results of the lead hazard risk assessment to the Contracting Officer for uploading into HALO or other system used by the installation.

At a minimum, the Contractor must be provided with a copy of the HALO Data Dictionary. The dictionary identifies the table names, field names, data types, and any required default values. The dictionary is part of the HALO program and can be obtained through the installation, or by contacting USACE CEERD-CF-M. If the transferee is known, consult with them for reporting requirements. In every case, electronic archives should be produced for the record.

****

The Contractor shall provide laboratory data to the Contracting Officer in both hard copy and electronic format. The electronic data report shall be provided in [HALO format] [insert other data management system as applicable].

2.4.5 Update Installation Management Plan

****

NOTE: If the installation does not use HALO for lead hazard program data management, you may choose to include the requirement in the SOW that the Contractor update the installation lead hazard management program documentation to incorporate the new data. Consult with the customer to determine the scope of this task (e.g., whether to limit the task to entry of new data into the appropriate electronic format, to include an update of a hard copy document, or to deliver an addendum to the existing installation plan).

****

[After entering the assessment data into HALO, the Contractor shall run the HALO program to generate an updated installation lead hazard management plan.]

[The Contractor shall update the installation lead hazard management plan.]

2.4.6 Comparison of Contractor Findings to Installation HALO Findings

[The Contractor shall include a comparison of the risk assessor findings and recommendations with those generated by HALO.]

2.4.7 Contractor Conclusions and Recommendations

The report shall contain conclusions and lead hazard control recommendations. The Contractor shall use Table B-2 (Appendix B) in developing conclusions and control recommendations. [Where the assessor's findings and recommendations differ from those generated by HALO, the report shall provide the rationale for the assessor's findings and recommendations.]

2.4.8 Other Field and Laboratory Data

The report shall include copies of field data, including building and paint evaluation forms, sample collection forms, chain of custody forms, and other forms and notes used to record field data that were used but not already addressed in drafting this report.

2.4.9 Summary of Lead Hazard Risk Assessment Results

The Contractor shall prepare a summary form for each housing unit assessed. An example Form 6 is included (see Figure B-6, Appendix B). The summary forms to be submitted by the Contractor as a part of the Risk Assessment Report shall include as a minimum the information contained on Form 6 in Figure B-6, Appendix B.

2.4.10 Regulatory Statements of Compliance

****

NOTE: This requirement addresses recommendations where no hazards are identified.

****

If lead hazards are not identified, the Contractor shall provide recommended monitoring protocols to minimize future lead hazard development, based on observations made during the assessment and accepted practices.

3.0 SUPPLEMENTAL REQUIREMENTS FOR CONTRACTED SERVICES

3.1 CONTRACTOR FIRM/PERSONNEL QUALIFICATIONS

3.1.1 Contractor Firm Experience

The contracted firm shall have a minimum of [insert appropriate number of years] years experience in conducting lead hazard risk assessments and have adequate qualified staff. Three references, at a minimum, shall be required for completed projects equal in complexity to the one described in this SOW.

3.1.2 Contractor Risk Assessor/Project Manager Qualifications

****

NOTE: Some states or local jurisdictions may use different terminology for individuals certified to complete the services described in this SOW, i.e., the

certificate may include a title other than "risk assessor."

****

The Contractor shall employ a certified risk assessor to complete the assessment described in this SOW.

3.1.2.1 EPA Certification

EPA certification (or certification under an EPA-approved state program) is required pursuant to 40 CFR 745.226 (64 FR 42849, 6 August 1999).

3.1.2.2 State and Local Certification

Each risk assessor shall possess current certification or licensing required under state or local jurisdictions, if applicable, in addition to or in place of EPA certification, depending or the requirements of the jurisdictions.

3.1.2.3 Evidence of Certification

A copy of each current applicable certificate shall be included in the Project Work Plan for each Contractor risk assessor participating in this project.

3.1.2.4 Record of Experience

A resume or other description of the certified risk assessor's experience, which is directly applicable to the activities required under this SOW shall be included in the Project Work Plan.

3.1.2.5 Use of Risk Assessment Teams

****

NOTE: Indicate the number and size of assessment teams for large, complex projects

****

The Contractor shall specify in the Project Work Plan the number of risk assessors and risk assessment teams are to be used to perform the risk assessment addressed in this SOW. No more than [insert appropriate number] risk assessors per team shall be assigned to conduct the risk assessments. Team leaders shall have a minimum of three years experience in conducting lead hazard risk assessments.

3.1.2.6 Project Manager Experience

The project manager shall have a minimum of three years experience in managing lead hazard risk assessments. A resume or other description of the project manager's experience that is directly applicable to the activities required under this SOW shall be provided as a part of the Project Work Plan.

3.1.3 Contracted Laboratory Qualifications

The Contractor shall provide as a part of the Project Work Plan evidence of current NLLAP recognition for each laboratory used for either preparation or analysis of samples taken for this assessment. The evidence of NLLAP recognition shall include certifications for each sample matrix analyzed. The laboratory conducting any worker exposure air sample analysis shall be accredited by the AIHA and shall be a currant successful passing participant in the AIHA's Proficiency Analytical Testing (PAT) Program for analyte sampled.

3.1.4 Contractor Errors and Omissions Liability Insurance

****

NOTE: Consult with the Contracting Officer to develop requirements for Contractor errors and omissions liability insurance that are appropriate for the scope of the project.

****

The Contractor shall provide documentation to the Contracting Officer that the Contractor is currently covered by an errors and omissions liability insurance policy. [insert errors and omissions text as appropriate]

3.2 PROJECT RECORDS

3.2.1 Record keeping Requirements

****

NOTE: EPA regulations (40 CFR 745.227(h)) require that lead-hazard risk assessment reports be retained for a minimum of three years. State, local, or installation regulations may require a longer retention period. Include the applicable retention period in the SOW requirements below.

****

The Contractor shall maintain records related to the risk assessment for at least [insert appropriate number of years] years following completion of the assessment(s) outlined under this SOW. Records shall include:

3.2.1.1 Project Work Plan

3.2.1.2 Risk Assessment Report

3.3 PROJECT COORDINATION

The Contractor shall coordinate activities through the Contracting Officer. Contact with installation personnel, including the installation POC, members of the installation lead hazard management team,

building occupants or POCs, and other installation personnel shall be coordinated through the Contracting Officer.

3.4 GOVERNMENT SUPPORT

****

NOTE: Little standard language is offered in this paragraph, since the requirements will be very project-specific. The specific language will need to be defined with the customer. Include in the following paragraphs provisions for utilities, water, phone lines, computers, and transportation while on the installation, etc. delineating who is responsible.

****

3.4.1 Government Quality Assurance Oversight and Support

[insert appropriate provisions]

The Contracting Officer reserves the right to quality assure the Risk Assessment Sample and Sample Location Documentation for any unit assessed, at any time during the course of the project.

3.4.2 Rights of Entry, Security, and Escorts

****

NOTE: It is advisable for Contractor personnel to be accompanied by an escort from the Housing Office while in family housing units. The escort should introduce the team on behalf of the Housing Office, state how long the work is expected to take, answer questions, and observe the team while it works. This is good public relations and protects the installation, the Contractor, and the occupants from disputes about claims of loss and damage. It reassures occupant family members, especially those who have forgotten about or have not heard about the risk assessments. If occupants (especially spouses) are likely not to understand the explanation in English, a bilingual escort should be provided. The escort may use the time on behalf of the Housing Office to discuss occupants' concerns and to observe actual and potential hazards and maintenance problems of all types.

If an escort cannot be provided, special precautions must be taken to protect all parties:

- **The notice to occupants about the impending work should include information to the occupant on how Contractor personnel should identify themselves at the door.**
- **Contractor personnel should be directed to never enter a unit unless there**

is an adult present or, at minimum, an older and responsible adolescent (18 years or older) who clearly understands the intended work and agrees to the team entering. Personnel should be directed not to ask children who answer the door whether a parent is home, but rather whether a parent is free to come to the door. This is to avoid encouraging children to tell strangers that no adult is home.

- **Agreement should be reached on what Contractor personnel can tell occupants about the work or in response to questions, as opposed to referring occupants to the Housing Office.**

It is not practical for a single person to introduce multiple teams of risk assessor(s) to each occupant because it is not possible to predict in advance how long each risk assessment will take.

****

[insert appropriate provisions]

3.4.3 Temporary Office/Equipment Storage/Staging Areas

The installation shall provide space for the duration of the field activities that the Contractor may use as a temporary office, equipment storage, and staging area. [The Government] [The Contractor] shall provide [insert appropriate text for utilities, phone lines, permits, etc.].

3.5 TRAVEL AND MEETINGS

All meetings shall be attended by both the Contractor project or task manager and the certified risk assessor if these are different individuals.

3.5.1 Preliminary Project Site Visit/Walkover

****

NOTE: Where the Contractor's project manager is not the same individual as the risk assessor, both the risk assessor and the project manager must be required to participate in the site visit. If the Contractor is to use a number of risk assessment teams, the risk assessor who is to act as the field team leader for each team must participate in the site visit. Other team members and support staff need not participate.

****

The [Contractor's project manager and] risk assessor(s) shall visit a representative sample of the units that will be assessed with the Contracting Officer and installation POC.

3.5.2 Project Work Plan Review and Start-up Meeting

The Contractor shall attend a start-up meeting to review, finalize and approve the Project Work Plan to include the Risk Assessment Sampling Plan immediately prior to beginning field activities. The Contractor shall generate meeting minutes that will be submitted to the Contracting Officer within [two weeks] of the meeting.

3.5.3 Data Certification Meeting

****

NOTE: Data certification may also be discussed at the Final Risk Assessment Report Meeting, Progress Report Meeting, or other meeting to help limit the number of required meetings.

****

[The Contractor shall attend a meeting to review the Contractor's risk assessment data certification outcomes.]

3.5.4 Final Risk Assessment Report Meeting

The Contractor shall attend a meeting to review the final Risk Assessment Report prior to final submittal.

3.5.5 Additional Meetings

[insert additional meetings if required]

3.6 SCHEDULES

****

NOTE: Consult with the customer in determining schedule requirements. Combine meeting topics where appropriate. At a minimum, the schedule milestones are:

1) Site visit/project walkover

2) Project Work Plan submission meeting

3) Project start-up meeting, if not combined with item 2

4) Data certification meeting, if not combined with item 5

5) Final Risk Assessment Report submission meeting

****

[Insert appropriate schedule milestones]

3.7 SUBMITTALS

3.7.1 Project Work Plan

The Contractor shall submit a Project Work Plan to the Contracting Officer for government acceptance.

3.7.2 Progress Report(s)

[The Contractor shall provide [weekly, biweekly, monthly, etc.] project progress reports to the Contracting Officer. The reports shall be due to the Contracting Officer [insert date(s) as appropriate]. The reports shall address [progress, schedule compliance, etc. as appropriate.].]

3.7.3 Final Risk Assessment Data Submission in Electronic Format

The Contractor shall submit risk assessment data in electronic [HALO] [specify other] format.

3.7.4 Final Risk Assessment Report

The Contractor shall provide [insert appropriate number of copies] of the Risk Assessment Report in [three ring binders] [specify other]. A compact disc (CD) of the report shall be included with each copy of the submittal.

3.8 MISCELLANEOUS

3.8.1 Glossary

This paragraph contains acronyms, and terms used in this SOW. For a more complete listing of terms commonly used in reference to lead-based paint projects consult appropriate regulations or ASTM standards.

Certified risk assessor	An individual who has been trained by an accredited training program, as defined by 40 CFR 745.223, and certified by EPA pursuant to §745.226 to conduct risk assessments. A risk assessor also samples for the presence of lead in dust and soil for the purposes of abatement clearance testing. (40 CFR 745.223)
Child-occupied facility	A building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms. (40 CFR 745.223)
Common area	A portion of a building that is generally accessible to all occupants. Such an area may include, but is not limited to, hallways, stairways, laundry and recreational rooms, playgrounds, community centers, garages, and boundary fences. (40 CFR 745.223)

Component, component system, building component	Specific design or structural elements of fixtures of a building or child-occupied facility that are distinguished from each other by form, function, and location. These include, but are not limited to, interior components…(40 CFR 745.223)
Contracting Officer	The Contracting Officer, or his/her designated Contracting Officer Representative (COR) or Contracting Officer Technical Representative (COTR)
Contractor	A private firm, corporation, or individuals operating under contract to provide service to the government as client or purchaser of the service. The contractor must possess all valid licenses and certifications as required by applicable regulations and the Contracting Officer. The term "contractor" in this SOW also implies the firm or individuals that hire and control the qualified risk assessors and support staff who perform the risk assessment.
Deteriorated paint	Any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate (40 CFR 745.63)
Distinct painting history	The application history, as indicated by its visual appearance or a record of application, over time, of paint or other surface coatings to a component or room. (40 CFR 745.223)
Double-blind sample	For the purposes of this SOW, this refers to a QC sample (replicate, duplicate, spiked sample, etc.) that is sent to the laboratory with no indication of the possible lead content and without identifying the sample as a QC sample.
Elevated blood lead level (EBL)	An excessive absorption of lead that is a confirmed concentration of lead in whole blood of 20 µg/dl (micrograms of lead per deciliter of whole blood) for a single venous test or of 15-19 µg/dl in two consecutive tests taken 3 to 4 months apart. (40 CFR 745.223)
Family Child Care (FCC) home	Authorized family housing units, other than the child's home, in which a family member provides child care to one or more unrelated children on a regular basis. (AR 608-10)
HALO	The Army's Hazardous Asbestos and Lead Optimal Management System, which is; an electronic management system designed for installation use to track lead hazards and actions taken in response to identified lead hazards.
Lead-based paint (LBP)	Paint or other surface coatings that contain lead equal to or in excess of 1.0 milligrams per square centimeter or more than 0.5 percent by weight (5000 µg/g (parts per million)). (40 CFR 745.223)
Lead-based paint hazard	Hazardous lead-based paint, dust-lead hazard, or soil-lead hazard as identified in Table A-1 and 40 CFR 745.65.

µg/ft^2	Micrograms per square foot
µg/g	Micrograms per gram (parts per million on mass/mass basis)
MS/MSD	Matrix spike/matrix spike duplicate
Occupant use patterns	Characteristics of occupants including number of child-bearing age females, average age and numbers of children occupying units, unit use patterns including entrances most frequently used, windows opened most frequently, use of window air-conditioners, gardening habits, cleaning habits of occupants, yard characteristics and use of yard as play area.
QA	Quality assurance; defined by NLLAP as an "integrated system of activities involving planning, QC, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a state level of confidence." (NLLAP LQSR Revision 2.0 (August 1, 1996))
QC	Quality control; defined by NLLAP as the "overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide quality that is satisfactory, adequate, dependable, and economical. (NLLAP LQSR Revision 2.0 (August 1, 1996))
Random Sampling	A technique for selecting a sample of *n* elements from a population of elements in such a way that each combination of *n* elements has the same probability of being selected. *In statistical sampling*, the process of selecting sample units in such a way that all units under consideration have the same probability of being selected. (ASTM E1605)
Rinsate Blank	A sample of "used" cleaning fluid rinse solution, also called an equipment blank. Rinsate blank examples include a final rinse of the device used to collect soil or vacuumed dust or the final rinse to clean a scoop used to collect soil or vacuumed dust samples. The rinsate blank is used in rinsing collection media and equipment prior to use to monitor possible cross contamination. The rinsate blank goes through all steps in the analysis including the digestion. (EPA, 757-R-92-006, May 1993)
Risk assessment	(1) An on-site investigation to determine the existence, nature, severity, and location of lead-based paint hazards, (2) The provision of a report by the individual or the firm conducting the risk assessment, explaining the results of the investigation and options for reducing lead-based paint hazards. (40 CFR 745.223)
Target Housing	Any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any one or more children age 6 years or under resides or is expected to reside in such housing for the elderly or persons with disabilities) or any 0-bedroom dwelling. (40 CFR 745.223)

Testing Combination	A unique combination of room equivalent, building component type, and substrate. (1995 HUD guidelines, Chapter 7)

APPENDIX B

TABLES AND FORMS

This appendix contains tables and example forms to be used in completing lead hazard risk assessments. The forms are adapted from those presented in the HUD guidelines, and may be further modified to meet installation-specific or project-specific requirements. The tables and forms include:

Table B-1
Number of Units to be Tested in Multifamily Developments

Number of Similar Units, Similar Common Areas, or exterior Site in a Building or Development	Pre-1960 or Unknown-age Building or Development: Number to Test	1960-1977 building or Development: Number to Test
1-9	All	All
10-13	All	10
14	All	11
15	All	12
16-17	All	13
18	All	14
19	All	15
20	All	16
21-26	20	16
27	21	17
28	22	18
29	23	18
30	23	19
31	24	19
32	25	19
33-34	26	19
35	27	19
36	28	19
37	29	19
38-39	30	20
40-48	31	21
49-50	31	22
51	32	22

Table B-1 (Continued) Number of Units to be Tested in Multifamily Developments		
Number of Similar Units, Similar Common Areas, or exterior Site in a Building or Development	**Pre-1960 or Unknown-age Building or Development: Number to Test**	**1960-1977 building or Development: Number to Test**
52-53	33	22
54	34	22
55-56	35	22
57-58	36	22
59	37	23
60-69	38	23
70-73	38	24
74-75	39	24
76-77	40	24
78-79	41	24
80-88	42	24
89-95	42	25
96-97	43	25
98-99	44	25
100-109	45	25
110-117	45	26
118-119	46	26
120-138	47	26
139-157	48	26
158-159	49	26
160-177	49	27
178-197	50	27
198-218	51	27

Table B-1 (Continued) Number of Units to be Tested in Multifamily Developments		
Number of Similar Units, Similar Common Areas, or exterior Site in a Building or Development	**Pre-1960 or Unknown-age Building or Development: Number to Test**	**1960-1977 building or Development: Number to Test**
219-258	52	27
259-279	53	27
280-299	53	28
300-379	54	28
380-499	55	28
500-776	56	28
777-939	57	28
940-1004	57	29
1005-1022	58	29
1023-1032	59	29
1033-1039	59	30
1500	87	44
2000	116	58
2500	145	73
3000	174	87
3500	203	102
4000	232	116

*Adapted from Table 7.3 of the 1997 Revision to the HUD Guidelines.

**Follow the procedures outlined in Section V of Chapter 7 of the HUD Guidelines (1997 Revision):

> …multifamily housing is defined as any group of units that are similar in construction from unit to unit, with:
>
> - 21 or more units, if any were built before 1960 or are of unknown age, or
> - 10 or more units, if they were all built from 1960 through 1977.

Developments with fewer units should be treated as a series of single-family housing units.

The number of similar units, similar common areas or exterior sites to be tested (the sample size) is based on the total number units, similar common areas or exterior sites in the building(s), as specified in Table 7.3. Use the table for sampling each set of similar units, each set of similar common areas and each set of exterior sites. For pre-1960 or unknown-age buildings or development with 1,040 or more similar units, similar common areas or exterior sites, test 5.8 percent of them, and round up any fraction to the next whole number. For 1960-1977 buildings or developments with 1,000 or more units, test 2.9 percent of the units, and round up any fraction to the next whole number. For reference, the table shows entries from 1500 to 1000 in steps of 500. For example, in a development built in 1962, with 200 similar units, 20 similar common areas, and 9 similar exterior sites, sample 27 units, 16 common areas, and all 9 exterior sites.

Appendix 12 of the HUD Guidelines details the statistical rationale for this table.

Table B-2*
Main Hazard Control Options That Could Be Identified in Risk Assessments

Treatment Option	Dust[1] on Floor	Dust[1] on windows	Paint[2] on Doors	Paint[2] on Windows	Paint[2] on Floors and Walls	Paint[2] on Trim	High Soil Lead Levels
Dust removal	X	X	X	X	X	X	X
Paint film stabilization			X	X	X	X	
Friction reduction treatments	X	X		X		X	
Impact reduction treatments	X	X	X			X	
Planting grass	X						X
Planting sod	X						X
Paving the soil	X						X
Encapsulation					X	X	
Enclosure					X	X	
Paint removal by heat gun[3]			X	X	X	X	
Paint removal by chemical[3]			X	X	X	X	
Paint removal by contained abrasive[3]			X	X	X	X	
Soil removal	X	X					X
Building component replacement			X	X	X	X	

*Adapted from Table 5.8 of the 1995 HUD Guidelines.

[1]Lead-contaminated dust.

[2]Deteriorated lead-based paint.

[3]Limited areas only.

Table B-3

Analytical Data Acceptance Criteria for

Lead-Based Paint Hazard Control Activities

DATA ATTRIBUTE Frequency	ACCEPTANCE LIMITS			
	SINGLE WIPE	COMPOSITE WIPE	PAINT CHIP	SOIL
INDEPENDANT CALIBRATION VERIFICATION (ICV) Once per Day	Within ± 10% of Known Value	Within ± 10% of Known Value	Within ± 10% of Known Value	Within 10% of Known Value
INITIAL CALIBRATION BLANK (ICB) At the Beginning of Run	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern
CONTINUING CALIBRATION VERIFICATION CCV) Beginning and End of Run and Every 10 Samples or as specified in the SOP	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA
INTERFERENCE CHECK SAMPLE (ICS) Beginning and End of Run or Twice Every Eight Hours	Within 20% of Known Value	Within 20% of Known Value	Within 20% of Known Value	Within 20% of Known Value
CONTINUING CALIBRATION BLANK (CCB) After each ICS and CCV	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern

DATA ATTRIBUTE Frequency	ACCEPTANCE LIMITS			
	SINGLE WIPE	COMPOSITE WIPE	PAINT CHIP	SOIL
LABORATORY CONTROL SAMPLE (LCS) One per 20 Samples or Batch-Minimum Frequency 5%	Within ± 20% of Known Value	Within ± 20% of Known Value	Within ± 20% of Known Value	Within ± 20% of Known Value
MATRIX SPIKE SAMPLE (MSS) One per 20 Samples or Batch-Minimum Frequency 5%	Within 25% of Calculated Value	Within 25% of Calculated Value	Within 25% of Calculated Value	Within 25% of Calculated Value
DUPLICATE FIELD SAMPLE (DFS) One per 20 Samples or Batch-Minimum Frequency 5%	Within ±25% Relative Percent Difference (RPD)	Within ±25% Relative Percent Difference (RPD)	Within ±25% Relative Percent Difference (RPD)	Within ±25% Relative Percent Difference (RPD)
MATRIX BLANK (MB) One per 20 Samples or Batch-Minimum Frequency 5%	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern

Adapted from Table 1, EPA NLLAP Laboratory Quality System Requirements (LQSR) Revision 2.0, August 1, 1999

FORM 1

BUILDING/HOUSING UNIT CONDITION

(In multi-family housing, use a separate form for each unit.)

Installation _____ POC _____

Housing Group _____

Street Address _____ Unit No. ___ City _____ State _____

Name of risk assessor _____

Condition	Yes	No	Comments
Roof missing parts of surfaces (tiles, boards, shakes, etc.)			
Roof has holes or large cracks			
Gutters or downspouts broken			
Chimney masonry cracked, bricks loose or missing, obviously out of plumb			
Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting			
Exterior siding has missing boards or shingles			
Water stains on interior walls or ceilings			

Plaster walls or ceilings deteriorated			
Two or more windows or doors broken, missing, or boarded up			
Foundation has major cracks, missing material, structure leans, or visibly unsound			
Other (specify)			
Other (specify)			
***Total Number**			

Risk Assessor Signature and Certification Number

Date

Figure B-1: Building/Housing Unit Condition Form

FORM 2 EP 1110-1-28
PAINT CONDITION ON SELECTED SURFACES DATA 31 Aug 01

Installation _____ POC _____

Housing Group _____

Street Address _____ Unit No. ____ City _____ State _____

Name of risk assessor _____

Building Component	**Location Notes**	**Paint condition: type of deterioration.**	**Deterioration due to friction or impact?**	**Deterioration due to moisture?**	**Location of painted component with visible bite marks**
Building siding					
Exterior trim					
Exterior windows					
Exterior doors					
Railings					
Porch floors					
Other porch surfaces					
Interior doors					
Ceilings					
Walls					
Interior windows					
Interior floors					
Interior trim					
Stairways					

Radiator (or radiator cover)					
Kitchen cabinets					
Bathroom cabinets					
Other surfaces:					
Mini blinds					

*Types of deterioration: surface deterioration (chalking, mildew, or friction/impact damage); bulk deterioration (checking, cracking and flaking, and alligatoring); layered deterioration (blistering, scaling or flaking (peeling), peeling from metal, peeling from exterior wood, peeling from plaster walls, and peeling from masonry surfaces); or a combination. If the overall condition of a component is similar throughout a dwelling, that condition should be recorded. The specific sites of the deteriorated paint should be noted. Record-specific locations of any component with bite marks.

(Table adapted from 1995 HUD Guidelines, Form 5.2)

Figure B-2: Paint Condition on Selected Surfaces Data Form

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FORM 3
DETERIORATED PAINT CHIP SAMPLING FORM
(One form for each housing unit, common area, or exterior)

Installation _____ POC _____
_____

Housing Group _____

Street Address _____ Unit No. ____ City _____ State
_____

Dwelling Selection Criteria: All Dwellings _____ Random ____

Sample ID#	**Room Name and Number**	**Component**	**Lab** Results	**Units**
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)
				µg/g (ppm)

Sample *all* layers of paint, not just deteriorated paint layers.

Total number of samples on this page: _

Date assessed: _____ Date sent to lab: _____

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FORM 3

DETERIORATED PAINT CHIP SAMPLING FORM

(One form for each housing unit, common area, or exterior)

Shipped by: _____ Received by: _____

(signature) (signature)

Date results reported: _____ Analyzed by: _____

(Note: Attach a Copy of the Chain-of-Custody Form to this Form. See Lab Report for QA/QC Information.)

NOTES:

_____

Name of Risk Assessor (print) _____

_____

Certification Number(s) _____

_____

Signature _____

Figure B-3: Deteriorated Paint Chip Sampling Form

FORM 4 EP 1110-1-28

RISK ASSESSMENT DUST WIPE SAMPLING FORM 31 Aug 01

(Single Surface Sampling)

Installation _____ POC _____

_____

Housing Group _____

Street Address _____ Unit No. ____ City _____ State

_____

Dwelling Selection Criteria: All Dwellings _____ Random ____

Sample ID#	**Room Name and Number**	**Surface Type (floor, window sill, etc.)**	**Is surface smooth and cleanable ?**	**Surface Substrate**	**Dimensions of Sample Area (inches)**	**Area (ft^2)**	**Results of Lab Analysis ($\mu g/ft^2$)**
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		
					____ X ____		

Total number of samples on this page: _____

Date of sample collection: _____ Date sent to lab: _____

FORM 4 EP 1110-1-28

RISK ASSESSMENT DUST WIPE SAMPLING FORM 31 Aug 01

(Single Surface Sampling)

(Note: Attach a Copy of the Chain-of-Custody Form to this Form. See Lab Report for QA/QC Information.)

NOTES:

_____

Name of Risk Assessor (print) _____

_____

Certification Number(s) _____

_____

Signature _____ Date _____

Figure B-4: Risk Assessment Dust Wipe Sampling Form

FORM 5
RISK ASSESSMENT SOIL SAMPLING
(Composite Sampling Only)

Installation _____ POC _____
_____

Housing Group _____

Street Address _____ Unit No. ___ City _____ State
_____

Sample ID#	Location	Bare	Results of Lab Analysis (µg/g or ppm)

Date of sample collection: _____ Date shipped to lab: _____

FORM 5
RISK ASSESSMENT SOIL SAMPLING
(Composite Sampling Only)

(Attach a Copy of the Chain-of-Custody Form to this Form. See Lab Report for QA/QC Information.)

NOTES:

_____

Name of Risk Assessor (print) _____

_____

Certification Number(s) _____

_____

Signature _____ Date _____

Figure B-5: Risk Assessment Soil Sampling Form

FORM 6 EP 1110-1-28

SUMMARY OF 31 Aug 01

LEAD-HAZARD RISK ASSESSMENT RESULTS

Installation _____ POC _____ Phone Number: _____

_____

Building Address or Location _____

Housing Unit No. (if applicable) _____

Location of Identified Lead-Based Paint and/or Lead Hazards

Room Number or Identifier	**Surface Type (floor, window sill, etc.)**	**Sample Type (dust, paint, soil)**	**Sample ID#**	**Results of Lab Analysis**	**EPA Action Levels**	**Basis for Determination of Hazard (e.g., deteriorated paint)**	**Comments**

Page _____ of _____

Date of sample collection: _____ Total number of samples collected: _____

KEY: (1) **Room Number or Identifier**: must correspond with the unique Unit Number used for each unit as identified in the Risk Assessment Report.

(2) **Sample ID #**: Must correspond to the unique sample numbers generated during sample collection and submitted in Laboratory Report as part of the Risk Assessment Report.

(3) **Results of Lab Analysis**: Report Dust in µg/ft²; Paint Chips in % by weight and µg/g (parts per million (ppm)) and soil in ppm.

(4) **EPA Action Levels**: Dust: 40 µg/ft² for floors; and 250 µg/ft² for window sills; Paint chips 0.5% by weight (5000 µg/g (ppm)); and soil: 400 ppm bare soil in play areas; 1200 ppm bare soil in non-play areas.

(5) **Basis for Determination of Hazard**: Dust exceeds Table A-1 action level for surface evaluated or as otherwise defined, paint chip exceeds Table A-1 definition for LBP and is deteriorated or as otherwise defined, and soil exceeds Table A-1 action levels based on child access and use.

Figure B-6: Summary Form, Lead-Hazard Risk Assessment Results

FORM 7

EXAMPLE CHAIN OF CUSTODY FORM

FOR LEAD RISK ASSESSMENT SAMPLING

Page _____ of _____

Project Name _____ Project Number _____ Installation _____ Project Manager _____ Company Name _____ Company Address _____ _____ Phone _____					Sample Preparation/Analysis Required (check the appropriate box)					
					ASTM E1644 (Prep)	ASTM E1645 (Prep)	ASTM E1726 (Prep)	ASTM E1979 (Prep)	ASTM E1613 (Anal)	Other (specify)
Sample ID	Sample Date	Time	Sample Matrix (wipe, paint chip, soil, other)	Laboratory ID						

Sampler: Signature Printed Name/Certification Number Company Name Date/Time	1. Released by: Signature Printed Name Company Name Date/Time	2. Received by: Signature Printed Name Company Name Date/Time	Special Instructions/Comments:

Figure B-7: Example Chain of Custody Form for Lead Risk Assessment Sampling